

Davis Refinery FAQ Document

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| <p>What is the expected output of the Davis Refinery?</p> | <p>The Davis Refinery will process approximately 55,000 barrels per day ("bpd") of crude oil, and will refine that oil into a full slate of liquid fuels and specialty chemicals, including a substantial amount of Gasoline, Kerosene (jet fuel) and Diesel. The exact quantities of each product will depend upon a number of things, including the mix or blend of crude oils that are used as the feedstock for the Refinery, and upon other issues that are currently the subject of the ongoing design of the Refinery.</p> |
| <p>What is the current refinery output in the Bakken today?</p> | <p>Currently, only 94,000 barrels per day of refining capacity exists in North Dakota – the 74,000 bpd Tesoro Refinery in Mandan and the 20,000 bpd Dakota Prairie Refinery in Dickinson. The rest of the crude oil produced in the Bakken has to be shipped out of North Dakota to distant refineries.</p> |
| <p>How much crude oil is currently produced in the Bakken Region requiring a refinery?</p> | <p>The Bakken Formation currently produces over one million barrels per day ("bpd"). Crude oil has no economic value unless it is run through a refinery.</p> |
| <p>What products will the Davis Refinery produce?</p> | <p>The Davis Refinery is a high-conversion refinery having Nelson Complexity Index of over 9, and will create a full range of refined products, including:</p> <ul style="list-style-type: none"> • Light Distillates: Gasoline, Naphtha, Gasoline • Middle Distillates: Diesel Fuel, Fuel Oil, Kerosene [Jet Fuel] • Heavy/Bottom Distillates: Lubricants, Motor Oil, Asphalt Base |
| <p>Who is Vepica and what is your relationship with them?</p> | <p>Meridian has entered into an engineering services agreement with Vepica USA, Inc., an international engineering firm specializing in - the energy and refinery industry, to provide process engineering, detailed design, equipment procurement, construction and equipment inspection and other related services to Meridian in connection with the Davis Refinery.</p> |
| <p>Who is BASIC Equipment and what is your relationship with them?</p> | <p>BASIC is a fully-integrated design, fabrication, construction and logistics firm that serves the oil & gas, refining, petrochemical and specialty process industries worldwide. Among other things, BASIC recently completed the design, installation, construction and start-up of a 25,000 bpd refinery Houston. Meridian has entered into a MOU with BASIC under which BASIC will provide a wide range of services to Meridian, up to and potentially including turnkey design-construction services in connection with the Refinery.</p> |

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| <p>Who is Axens and what is your relationship with them?</p> | <p>Axens is an international provider of advanced technologies, catalysts, adsorbents and services, with a global reputation for basic engineering design excellence. Axens will define the underlying proprietary process technology for several of the Davis Refinery process unit operations, and grant a license to Meridian to implement the project using Axens' know-how.</p> |
| <p>Who is Brookline Capital Markets and what is your relationship with them?</p> | <p>Brookline Capital Markets, LLC is a leader in growth finance, providing advisory and investment banking services to emerging growth companies. They have a strong track record of structuring financings for both private and emerging public companies. Meridian has established a Placement Agency Agreement with Brookline, under which Brookline will be the exclusive placement agent and principal financial advisor to Meridian in connection with the project financing of the Davis Refinery.</p> |
| <p>Where is the Davis Refinery and how much land will it occupy?</p> | <p>The Davis Refinery will be located on the 620-acre property that Meridian is acquiring for the Refinery in Billings County, North Dakota, just west of the town of Belfield.</p> |
| <p>What is a greenfield plant and why is it important?</p> | <p>The Davis Refinery will be only the second Greenfield Refinery built in the US since 1976. A Greenfield plant is a brand new facility, as opposed to a facility that requires an addition to or a modification to an existing facility – in other words, when construction starts, it is on a “green field.” A greenfield refinery like the Davis Refinery is not burdened with the need to make the new operating units work in conjunction with pre-existing legacy operating units that might also represent old technology. This will insure that the Davis plant can leverage the latest technology from the ground up, and can much more easily and efficiently comply with modern environmental or safety requirements.</p> |
| <p>How long will construction of the Davis Refinery take?</p> | <p>Field construction of a large complex refinery such as the Davis Refinery would typically require two years or longer, but Meridian is working on innovative ways to shorten that construction schedule substantially.</p> |
| <p>How many jobs will the Davis Refinery create, both short- and long-term?</p> | <p>Construction of the Refinery may require as many as 500 people, with that number peaking sometime during 2017. Permanent employment at the Davis Refinery will be about 225 to 250. Meridian will take steps to maximize the proportion of Refinery jobs, at all levels in the organization, that come from the local pool of potential employees. This includes supporting local training and apprenticeship programs. Studies conducted by the State of Washington of the social impact of</p> |

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| | <p>a refinery in Anacortes showed that each permanent job at the refinery created an additional 9.18 jobs in the local community. In other words, the permanent jobs at the Davis Refinery may create over 2,000 additional jobs in North Dakota, and those jobs would be primarily in Billings and Stark Counties.</p> |
| <p>When is the Davis Refinery expected to begin operation?</p> | <p>Meridian expects that mechanical completion of the Refinery will be achieved within two years of commencing construction. Full commercial operation of a facility this large and complex may require from six months to a year following mechanical completion.</p> |
| <p>How will the Davis Refinery impact the cost of crude oil refining and transport in the Bakken?</p> | <p>The Davis Refinery will substantially increase the number of competitive choices to the oil producers in the Bakken, and to the local and regional consumers of refined products</p> |
| <p>How will the Davis Refinery remain profitable?</p> | <p>Meridian expects the Davis Refinery to operate successfully and profitable for decades to come because of the manner in which it is being designed, the manner in which it will be constructed, and the long-term relationships that Meridian is establishing with selected crude oil producers. The wide array of high-quality finished product will allow Meridian to be flexible with a variety of demand.</p> |
| <p>How will local crude be transported to/from the Davis site for refining?</p> | <p>The Davis Refinery will initially accept crude oil shipments by truck, rail and pipeline, but will gradually migrate the vast majority of its crude-shipments to pipeline gathering systems, which are safer and more cost effective.</p> |
| <p>What is clean fuels technology?</p> | <p>Clean fuels technology refers to the application of modern chemical and process design, information and controls technology, and environmental engineering to ensure that the Refinery operates with minimal waste and inefficiency. Clean fuels technology leveraged in the Davis Refinery will ensure its operation and products comply with all applicable environmental and safety requirements.</p> |
| <p>What are the key advantages to building a refinery within the Bakken?</p> | <p>By building the Davis Refinery close to the oil producers, Meridian can enter into long-term supply arrangements with producers that make them stronger financially, and at the same time reduce its feedstock costs substantially. This will also enable Meridian to provide local and regional fuel consumers with additional competitive choices, which will result in reduced costs and increased service levels to those consumers. The existing practice of exporting Bakken crude to distant refineries and then transporting the refined products back into the area results in waste, inefficiency and needless pollution.</p> |
| <p>Has the Davis Refinery met all energy and environmental requirements?</p> | <p>The Davis Refinery is being designed to meet the requirements of the State of North Dakota's Department of Health in connection with all - areas of environmental concern, including air and water quality and waste disposal.</p> |

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| <p>Has the Davis Refinery met all clean fuels standards?</p> | <p>The Davis Refinery is being designed to do so, and must do so in order to operate.</p> |
| <p>Will the Davis Refinery reduce our dependence on foreign oil?</p> | <p>Indirectly it will. First of all, note that because of the Bakken and the other unconventional oil development in the US, our nation is once again the world's largest oil producer. However, during the many decades during which the US imported most of its oil, the refining industry concentrated its assets in major coastal port areas so that they could source their crude from world markets – and that is why Bakken producers suffer such a price disadvantage compared to other producers that can readily access, for instance, Gulf Coast refineries. By locating a major refinery close to the Bakken producers, Meridian will make those producers more competitive, and as more refinery operators do the same, the incentives to further develop US energy resources rather than rely on imported oil will increase.</p> |
| <p>What is a tolling agreement?</p> | <p>A tolling agreement is a commercial arrangement under which a commodity producer, like a Bakken oil producer, and a commodity processor, such as Meridian, share the risks and benefits of a processing facility such as the Davis Refinery, in a way that benefits both parties financially. By contracting with Meridian to process a substantial amount of his production into refined product for a fee, an oil producer can ensure a long-term sustainable profit margin for that increment of production – he might make higher profits in some years by playing the market, but he establishes a secure long-term commercial base through his Meridian tolling deal. By committing a substantial proportion of its capacity to tolling arrangements, Meridian - ensures a long-term supply of crude oil for the Davis Refinery at a secure and sustainable margin – Meridian might be able to make more money in some years by buying crude in the spot market and selling the products, but the tolling arrangements provide Meridian with a profitable long-term sustainable resource base.</p> |
| <p>How will the Davis Refinery impact the price of oil?</p> | <p>By locating a major refinery in the Bakken, Meridian will remove inefficiencies and increase competitive choices. The net result will be that the crude suppliers that work with Meridian will be more profitable and financially stable and the consumers and businesses that rely on refined products will benefit from a more competitive market.</p> |
| <p>What is a topping plant?</p> | <p>Essentially they are simple atmospheric distillation units that produce hydrocarbon boiling point cuts, typically focusing on diesel fuels. A topping unit is an inexpensive, technically simple means to enhance the value of crude oil near the source of production.</p> |

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| <p>What impact will construction and operation of the Davis Refinery have on the neighboring communities in terms of:</p> <ul style="list-style-type: none"> Noise due to transport and construction? | <p>During the two-year construction period of the Refinery there will be some noise from the heavy equipment used in building the facility, but most of that will be focused on the site work during the first year of the schedule. When the Refinery is in operation, there will be noise – not a few big noises, but an accumulation of smaller noises – that we will take steps to minimize. Noise is typically a function of line of sight and weather conditions, and there is a lot we can and will do to isolate and reduce the auditory impact of rotating machinery like pumps and compressors in a facility like the Refinery.</p> |
| <p>What impact will construction and operation of the Davis Refinery have on the neighboring communities in terms of:</p> <ul style="list-style-type: none"> Bright lighting during late-night/overnight construction? | <p>It would be unsafe to our employees to eliminate lighting, and of course there will be some taller structures that must follow legal requirements intended to protect aircraft. However, lighting is something that can be minimized through good engineering. For instance, the Davis Refinery will be using special “down reflecting” lighting for its - construction and operational lighting. We will also use the latest LED technology which is not only safer than traditional bulbs, but have proprietary optics designed to focus light directionally so they illuminate only the required area within the refinery, such as straight walkways, avoiding adjacent and upward spill.</p> |
| <p>What impact will construction and operation of the Davis Refinery have on the neighboring communities in terms of:</p> <ul style="list-style-type: none"> Water supply due to waste disposal? | <p>The Davis Refinery will be using more than one source of water for its process water requirements. The waste disposal of solids and liquids from the refinery operations will be processed by latest technology treatments before disposal. The Refinery will not be negatively impacting water supply or water quality in the area, and the presence of the Refinery might enable certain local problems in water supply and disposal to be eliminated. Meridian has engaged SEH, Inc. who will be performing site surveying and geotechnical analysis for the Davis Refinery to undertake a thorough water availability study, and has indicated the unique opportunity of using reclaimed waste water from a nearby sewage treatment plant in Belfield for our process water.</p> |
| <p>What impact will construction and operation of the Davis Refinery have on the neighboring farms and livestock near the grounds?</p> | <p>A large percentage of the traffic into and out of the Refinery, both during construction and operations, will be by rail, which will reduce dust and other emissions substantially. And finally, we consider dust control on the site during construction to be a construction safety hazard and a health issue for our own employees, and therefore we will be controlling it both through paving on the site and by liberal use of water trucks where paving is not possible. We will not be hauling a significant amount of aggregate to the site from the quarry or borrow pit near neighboring property. It appears that our earthwork on the site is very nearly balanced, so we do not need to build things up substantially. If we do need to haul substantial amounts of aggregate, then we will simply have to extend our dust control measures to the haul roads that serve our sites.</p> |

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| <p>What does zero-sulfur diesel and jet fuel mean, and why is that important?</p> | <p>The EPA has promulgated regulations on the content of liquids transportation fuels that the Refinery must meet in order to market its products. These regulations not only mandate current requirements, but also require that certain changes take place over time. The Refinery is being designed to be able to meet these requirements.</p> |
| <p>What is gas flaring, and how does the Davis Refinery intend to address the issue of gas-flaring emissions?</p> | <p>The flaring of low-value natural gas at the wellhead, which results in the release of a large amount of carbon dioxide into the atmosphere, has created an ongoing environmental crisis in the Bakken. The Davis Refinery will reduce flaring emissions by over 50% for every cubic foot of gas that it consumes. Flare stacks will be equipped with air assisted blowers to help ensure cleaner complete combustion of flare gas and smokeless operation. Flare emissions will be analyzed by monitoring equipment.</p> |
| <p>Profitability</p> | |
| <p>Have you applied for an Air Quality Permit? If so, what is the status?</p> | <p>Meridian has submitted the Air Quality Permit to Construct Application to the North Dakota Department of Health Air Quality Division in early October of 2016. The State of North Dakota's Department of Health will be the lead agency for review of the Refinery's applications for Air Quality and Water Quality Permits for the project. Billings County will be the lead agency for the Refinery's zoning and conditional use permitting.</p> |
| <p>How will oil refinery remain competitive in relation to other energy sources as oil costs continue to rise?</p> | <p>Even with domestic oil at over \$100, green technology has required, and still needs, large & unsustainable subsidies. Peak Oil is a bankrupt theory, as market conditions show:</p> <ul style="list-style-type: none"> • Green Tech will never be able to compete with traditional fuels • Subsidies would have to become permanent and are unsustainable • Demand for oil/gas will grow 28% from 2020 to 2040 <p>The Davis Refinery is a very competitive player in domestic liquid fuels with its low costs and geographical advantages</p> |
| <p>Is domestic oil refining already over capacity?</p> | <p>Global utilization has dipped to below 70% recently, but domestic utilization holds steady at over 90%. Global demand for refined products continues to grow. Even if the macro view showed overcapacity, the micro view favors Meridian, in terms of:</p> <ul style="list-style-type: none"> • Competitive geographical position • Competitive cost structure • Tolling secures markets and margins |
| <p>Why can we expect the Davis Refinery to be economically competitive</p> | <p>The Davis Refinery has substantial competitive advantages, such as:</p> |

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| | <ul style="list-style-type: none"> • Geographical advantages for crude and product market access • Capital efficiency <p>Davis financial analysis shows very strong performance:</p> <ul style="list-style-type: none"> • Basic project IRR of nearly 20% • Investor return of 5Xs to 10Xs in 3 to 5 years <p>Risk mitigation:</p> <p>Fixed price performance guaranteed design-construct agreement</p> <ul style="list-style-type: none"> • Crude-product tolling agreements • Risk management platform through major insurance-surety firms |
| <p>How will an oil refinery as small as Davis remain competitive?</p> | <p>The Davis Refinery will remain competitive given three factors:</p> <p>Capital Efficiency - Davis has lower unit capital cost than bigger plants, negating the Economy of Scale argument.</p> <p>Complexity - Davis' Nelson Complexity Index is >9, higher than most larger plants.</p> <p>Location - Refinery is sited in an area where a larger facility would suffer significant diseconomies of scale.</p> |
| <p>The Davis Refinery has not received its air quality permit to construct (PTC) from the North Dakota Department of Health (NDDH) – how confident are you in receiving approval?</p> | <p>Meridian received its toughest permit – rezoning & conditional use permit (CUP) - from Billings County on 06-Jul-16. Davis waited for the CUP to perform the engineering to prepare the PTC application and ensure compliance. Meridian has reviewed its modeling and designs with NDDH, and knows that its application and backup documents are complete.</p> <p>The full 55,000 bpd Davis Refinery will qualify as a Minor Source! As a Minor Source, the PTC is non-discretionary – we meet the requirements so we will get the permit</p> <p>Application will go in the week of xx-Sep-16, and we will receive the PTC in early 2017</p> |
| <p>Will the Davis Refinery remain compliant with the ever-tightening EPA fuel standards?</p> | <p>Yes - Davis Refinery already meets EPA standards thru 2020:</p> <ul style="list-style-type: none"> • Gasoline, aviation fuel & diesel already exceed EPA specs • Even tank bottoms would qualify as low-sulfur fuel oil <p>The Davis Refinery has high Nelson Complexity (>9), enabling the Refinery to respond to further tightening of regulations as well as even the most complex domestic refiners.</p> |
| <p>Will the Davis Refinery be proximal enough to the demand for refined products?</p> | <p>Most Bakken crude – 1mm bpd currently, 2mm bpd eventually – is shipped to distant refineries, with refined products shipped back to the region.</p> <p>The Davis Refinery accesses inexpensive local crude, some that cannot connect to crude pipelines – big cost advantage. Davis will ship high-value products to local & regional markets – not all products go to the same place. Some markets are close enough for local truck delivery, others will be served by accessing product pipelines.</p> |

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| <p>How equipped will the David Refinery be to deal with a natural disaster?</p> | <p>Resiliency in event of disaster will be ensured by training the entire work-force in security, fire and medical response as if the Refinery were a ship at sea.</p> <p>The Davis Refinery participates in local emergency management authority activities, and has engaged the former head of local emergency management as its liaison to local agencies and member of its advisory board.</p> |
| <p>Why will the Davis Refinery succeed given that Calumet and MDU could not make the Dakota Prairie Refinery work?</p> | <p>Meridian studied Dakota Prairie closely, and has taken steps, thru contracting & project management strategy, to ensure Davis maintains advantages with regard to:</p> <ul style="list-style-type: none"> • Design and constructed • Project management practices • Greatly reduced capital costs, and strict adherence to the project timeline <p>Tesoro recently acquired Dakota Prairie, and Meridian believes Tesoro will be able to operate the facility profitably.</p> |
| <p>Technology</p> | |
| <p>How will the Davis Refinery technology deal with the issue of tank vapors?</p> | <p>Storage tank vapor emissions will be collected by vapor recovery systems that can recover over 95% of tank vapors. These high BTU value vapors can be put into the refinery fuel gas system and reduce the amount of purchased natural gas.</p> |
| <p>What will be done to control the concentration of Hydrogen Sulfides being emitted from the Davis Refinery?</p> | <p>Wet gas compressor flare controls will have scrubbers to ensure very low H₂S ppm concentration is in the emissions.</p> |
| <p>What is being done to ensure the fuel gas has clean burn quality?</p> | <p>Davis Refinery fuel gas will be scrubbed by amine contactors to ensure the fuel gas quality has clean burning quality.</p> |
| <p>How will the Davis Refinery maintain acceptable levels of NO_x during combustion?</p> | <p>Heaters will be equipped with low NO_x burners that will greatly reduce NO_x during the combustion process. Additionally, Heater stacks will have Selective Catalytic Reduction converters that uses a catalyst reaction technology to greatly reduce the NO_x emissions in the flue gas. Those heater stacks will have flue gas analyzers equipped with zirconium oxide sensors that will help monitor and control heater stack emissions.</p> |
| <p>How will the Davis Refinery control VOC emissions from the site?</p> | <p>Davis Refinery piping & equipment flanges will be torqued per API torqueing specs to help greatly reduce the amount of VOC emissions from the site.</p> <p>Further, pump suction strainer piping will have 2" drains to enable debris to be quickly & easily washed off the screen rather than have to steam the pump hydrocarbons to the flare before physically taking the piping apart to remove the screen for cleaning.</p> |